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# Back to the Classroom

*More education often results in higher paychecks for workers in the construction and health care industries, according to a DEED analysis.*

The connection between school and work is getting increased scrutiny in this era of rising educational costs. Students want to know if their schooling will pay off. State education planners and policymakers, meanwhile, want to know if more education will help people find jobs and make Minnesota businesses more competitive.

To help answer those questions, DEED and two other state agencies[1] partnered to design the Statewide Longitudinal Education Data System (SLEDS) and the Workforce Data Quality Initiative (WDQI). These two systems link data on people who completed a degree or certificate program in Minnesota with wage records from all employers subject to unemployment insurance taxes in the state. By examining these data, it is possible to compare salaries of people before and after they obtained degrees or certificates.[2]

This article analyzes data on people who completed one- or two-year programs for associate degrees or sub-baccalaureate awards during the 2009-2010 school year in Minnesota.

These programs were chosen for several reasons. First, there is less research available on the outcomes of people with associate degrees or certificates compared with those who earned bachelor's degrees. Second, these are relatively short-term programs and therefore more attainable for the average person in the workforce. Third, enrollment in Minnesota's postsecondary schools rose by 15.2 percent from 2007-2011,[3] with community and technical colleges and private for-profit schools — the institutions that offer associate degrees and certificate programs — responsible for much of that increase. During the study period, 14,830 people earned sub-baccalaureate awards and 18,066 people earned associate degrees in Minnesota.

## Certificate and Associate Degree Programs

People receiving sub-baccalaureate awards in 2009-2010 studied in 253 distinct programs. The top 10 programs of study are presented in Table 1. As can be seen, nursing programs occupy the top two spots.

TABLE 1

**Programs of Study for Sub-Baccalaureate Awards**

| Classification of Instructional Programs (CIP) Title | Number of Programs |
|---|---|
| Nursing Assistant/Aide and Patient Care Assistant/Aide | 2,237 |
| Licensed Practical/Vocational Nurse Training | 1,365 |
| Cosmetology/Cosmetologist, General | 1,213 |
| Criminal Justice/Police Science | 616 |
| Welding Technology/Welder | 402 |
| Massage Therapy/Therapeutic Massage | 357 |
| Business/Commerce, General | 319 |
| Electrician | 295 |
| Carpentry/Carpenter | 291 |
| Dental Assisting/Assistant | 269 |

*Source: Minnesota Office of Higher Education*

TABLE 2

**Programs of Study for Associate Degrees**

| Classification of Instructional Programs (CIP) Title | Number of Programs |
|---|---|
| Liberal Arts and Sciences/Liberal Studies | 5,038 |
| Registered Nursing/Registered Nurse | 1,800 |
| Business Administration and Management, General | 751 |
| Licensed Practical/Vocational Nurse Training | 606 |
| Accounting | 569 |
| Criminal Justice/Police Science | 472 |
| Computer Systems Networking and Telecommunications | 381 |
| Veterinary/Animal Health Technology/Technician and Veterinary Assistant | 318 |
| Medical/Clinical Assistant | 301 |
| Health Information/Medical Records Technology/Technician | 300 |

*Source: Minnesota Office of Higher Education*

Many of the top 10 courses of study for those receiving associate degrees were similar to the sub-baccalaureate award programs, with the exception of "liberal arts and sciences/liberal studies" (see Table 2). Nearly half of the students enrolled in liberal arts and sciences/liberal studies subsequently enrolled at another Minnesota postsecondary institution, with three-quarters of that group seeking bachelor's degrees.

Both award levels have heavy concentrations of students in the health field. In fact, nearly three-fourths of the women who received sub-baccalaureate awards in 2009-2010 majored in health or beauty fields. Male students represent more than 90 percent of the students receiving sub-baccalaureate awards for welding, electrician and carpentry programs, or associate degrees in computer systems networking.

The average age of someone completing a sub-baccalaureate award was 28, with ages ranging from 13 to 76 at the time of completion. Two-thirds of those receiving sub-baccalaureate awards of less than one year in 2009-2010 were nontraditional-age students. Given their ages, many students were employed prior to enrollment.

## Industry Alignment

The industry where people find jobs is an important metric in evaluating the efficacy of college degrees. Are students able to turn certificates and diplomas awarded below the bachelor's degree into a job in their desired industry? Of the 32,896 total students who received a sub-baccalaureate or associate degree during the study period, 22,971 (70 percent) could be linked

with employee wage records submitted quarterly by employers subject to unemployment insurance taxes in Minnesota.

Non-matches do not necessarily indicate unemployment. These people may be working in other states or as independent contractors, or their Social Security numbers may have been incorrectly entered. Where there are matches, the dataset allows for an analysis of hours worked, wages and industry of employment by quarter.

As noted above, nursing assistant/aide — one of the health professions programs — was the most common major for those receiving a sub-baccalaureate award during 2009-2010. Of the 2,237 graduates of this program, 1,672 had a match to wage records. Fifty nine percent of the people in that group were working in a related industry one year after receiving their degrees.

Table 3 presents the industry sector of employment one year after graduating with a sub-baccalaureate award in the health profession and related programs. The analysis was limited to students who had a wage match two years prior to and one year after graduation. These were then split into two groups: those employed in the health care and social assistance industry and those employed in an industry other than health care two years previous to graduation.

Nearly four-fifths of those who received a health professions award were employed in health care two years prior to graduation and remained in health care and social assistance one year after graduation. More importantly, this group saw a 33 percent increase in median wages. Students who did not work in the health care industry two years prior to graduation but moved into the industry after graduation saw a 28 percent increase in median wages. Health profession graduates who

TABLE 3

**Industry Sectors of Employment Before and After Graduation: Sub-Baccalaureate Awards in Health Profession and Related Programs**

| Two Years Before | | | | One Year After | | | |
|---|---|---|---|---|---|---|---|
| Industry Title | Count | Percent Employed in Industry | Median | Industry Title | Count | Percent Employed in Industry | Median |
| Health Care and Social Assistance | 1,127 | 34% | $11.42 | Health Care and Social Assistance | 998 | 89% | $15.18 |
| | | | | Other | 129 | 11% | $12.28 |
| Other | 2,228 | 66% | $9.88 | Health Care and Social Assistance | 1,154 | 52% | $12.61 |
| | | | | Other | 1,074 | 48% | $11.74 |

*Source: Minnesota Office of Higher Education and Minnesota unemployment insurance wage records*

TABLE 4

**Industry Sectors of Employment and Wages Before and After Graduation: Sub-Baccalaureate Award in Construction Trades**

| Two Years Before | | | | One Year After | | | |
|---|---|---|---|---|---|---|---|
| Industry Title | Count | Percent Employed in Industry | Median | Industry Title | Count | Percent Employed in Industry | Median |
| Construction | 90 | 18% | $14.00 | Construction | 65 | 72% | $18.04 |
| | | | | Other | 25 | 28% | $13.55 |
| Other | 405 | 82% | $9.77 | Construction | 113 | 28% | $14.41 |
| | | | | Other | 292 | 72% | $12.52 |

*Source: Minnesota Office of Higher Education and Minnesota unemployment insurance wage records*

were not working in the health care industry one year after graduation fared less well, even if they were employed in health care previously.

Students not employed in health care either two years before or one year after graduation saw a 19 percent increase in their median wages, which was above the cost of living increase during that period. Though these students were not employed in the health care industry one year after graduation, it could be assumed some were employed in health care occupations in another industry.

Table 4 presents information on the 994 sub-baccalaureate awards for construction trades programs in 2009-2010. Of those students, 495 had a matching wage record both two years prior to and one year after completion. Their industries of employment are presented in Table 4. Like graduates in health professions and related programs, those employed in construction before and after graduation had the highest median wage one year after graduation. But unlike graduates of health professions and related programs, those who moved from a different industry into the construction industry after graduation did the best, with wages up 47 percent over the three-year period. The number of people who were able to move into the construction industry, however, was relatively small, likely due to the fact that construction has yet to fully recover from the recession.

## Wages

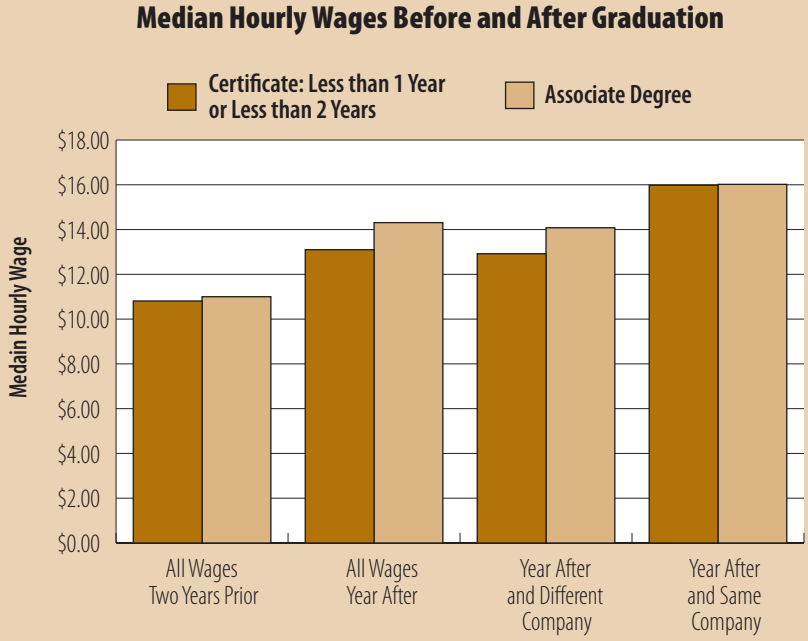
Increased wages are a clear goal for investing in education. Figure 1 shows the quarterly median wages of those who received certificates or associate degrees in 2009-2010, comparing wages two years prior to degree completion and one year after completion. Median hourly wages increased one year after completion for both certificates and associate degrees. It is important to note, however, that wages tend to increase with age and experience, as well as with increased education. It is impossible to know, given the current analysis, how much of the wage increases described here were due to education alone.

Looking at job experience adds another dimension to the wage growth picture. The last two columns in Figure 1 show the quarterly median wage difference between those who worked at the same company before and after completion and those with a different employer one year after completion. Clearly, those who remained with the same employer did better on average

than those who found work elsewhere one year afterward. The average increase in median hourly wages for those who switched employers is 24 percent versus a 47 percent increase for those who remained at the same company. Again, it is important to note that workers with long-term attachments to the same employer tend to see wages rise more quickly than those who have had steady employment but not with the same employer. It is impossible to know from this study how much of the respective wage increases were due to education versus other factors such as increased experience or long-term attachment to an employer.

While this article does not provide a definitive analysis of the benefits of various awards and degrees, it does introduce the types of analyses that can be done using the new longitudinal SLEDS database. As more data are added to this system, including participants of workforce development programs, and a longer time series of completers and wage records, more extensive analysis will become possible. Stay tuned for more articles in Trends and on the SLEDS website at www.tinyurl.comSLEDSwebsite.

FIGURE 1




*Source: Minnesota Office of Higher Education and Minnesota unemployment insurance wage records*

[1]The Minnesota Office of Higher Education and the Minnesota Department of Education.

[2]Eventually, SLEDS will link pre-K through postsecondary education data to wage records, while WDQI will link postsecondary and Adult Basic Education data to wage records and employment program administrative data maintained at DEED.

[3]Minnesota Office of Higher Education, Basic Data Series 2011.